

H. H. C. DUNWOODY.
WIRELESS TELEGRAPH SYSTEM.
APPLICATION FILED APR. 30, 1906.

Fig. 1.

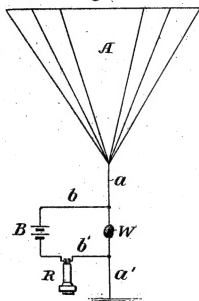


Fig. 2.

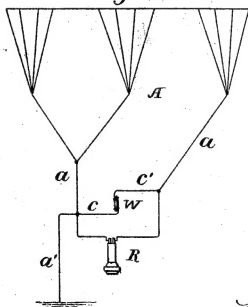
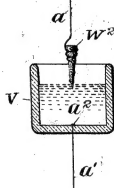


Fig. 3.



Fig. 4.



Witnesses
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WIRELESS-TELEGRAPH SYSTEM

No. 854,813.

Specification of Letters Patent.

Patented May 28, 1907.

Application filed April 30, 1906. Serial No. 314,478.

To all whom it may concern:

Be it known that I, HENRY H. C. DUNWOODY, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Wireless-Telegraph Systems, of which the following is a specification.

My invention relates to wireless telegraph or signaling systems, and has for its object more particularly to provide an improved wave responsive or detecting device, and to these ends my invention consists in a wave responsive or detecting device of the character substantially as specified, adapted to be arranged and operating substantially in the manner hereinafter pointed out.

In the accompanying drawing,—Figure 1 is a diagram showing a signal receiving apparatus embracing the subject-matter of my invention; Fig. 2 is another diagram showing the circuits somewhat differently arranged; Fig. 3 is a detail view showing one manner of utilizing my wave responsive device; and Fig. 4 is a transverse section of an electrolytic apparatus showing another way of using my wave responsive device.

The material which I now describe is a crystalline material, and comprises a concrete mass or body of what is generally termed magnetite either natural or artificial, and having the general formula of Fe_3O_4 . This material may be of any desired shape or size, and is generally used in the form of a concrete mass or body of crystals which may vary in size and character. This wave responsive material can be connected in the circuit of a signal receiving apparatus in many and various ways, some of which are indicated in the annexed drawing, and I do not, therefore, limit myself to any particular manner of using the material, or any particular form thereof.

In the drawing A represents an aerial receiving conductor or wave collector or antennæ, which may be of any well known or desirable form, being shown for convenience as embodying what is generally known as the fan type of aerial receiver. This receiver or collector is connected to a conductor a having a ground terminal a' , and interposed in this conductor is the wave responsive device W.

In Fig. 1 there is a branch circuit including a battery B and conductors b, b' , which are connected to conductors a, a' at opposite

sides of the wave responsive device W. This circuit includes a signal receiving device, shown in the present case as in the form of an ordinary magneto telephone receiver, in practice this being usually embodied in the ordinary head telephone form for convenience.

In Fig. 2 I have illustrated an arrangement which I have found to be practically operative, in which there is an aerial receiver or wave collector A, in which the antennæ are connected by the conductors a, a' to the ground conductor or antennæ a' , and there is a signal receiver R in the circuit from a portion of the antennæ between it and the ground. The receiver is bridged by a shunt circuit c, c' , including a wave responsive device W, there being no battery or other independent source of electric current.

The wave responsive device may be in many and various forms, and in Fig. 3 I have indicated it in the form of a mass or body W of crystalline material in the form of magnetite, to which the ends of the wires or conductors a, a' are secured in any suitable way, as by being twisted or bound tightly around the ends of the body.

In Fig. 4 I have shown a vessel V containing some electrolyte as mercury, or an acid, or an alkali electrolyte, and the wave responsive device W is preferably in the form of a pointed mass, and at one end is connected to the conductor a , the smaller or pointed end being immersed to a greater or less extent in the electrolyte, and the other conductor a' is either connected to the vessel V, if it is of conducting material, or to a separate electrode or terminal a'' immersed in the electrolytic fluid.

I do not deem it necessary to describe other forms and ways of using the material for the purposes intended, as they will be appreciated by those skilled in the art.

It will be understood that in actual practice, my new wave responsive device may be used in connection with tuning devices or other adjuncts commonly known and used in the art, but I do not deem it necessary to show or describe any of these well known devices.

One of the advantages of the use of my improved wave responsive material, especially in connection with an electrolyte is that it is not only very sensitive as a receiver or responder, but it also possesses the great

advantage that it will not burn out or be destroyed when located near a sending station, as the intense disturbances or waves produced at a sending station located in proximity to my improved receiver, do not destroy or injure the same, as is the case with many other responsive devices of the electrolytic type.

I have found that what is ordinarily known as the loadstone, being a natural product, is well adapted for the purposes intended, and also the artificially prepared crystalline material whether in the form of the triferrotetra oxid, commonly called the magnetic oxid and having the formula Fe_3O_4 or in the form of a sesqui-oxid having the general formula Fe_2O_3 , although so far as my present tests are concerned I prefer to use the former.

What I claim is,—

1. A wave responsive device comprising a concrete mass or body of magnetite. 20
2. A wave responsive device comprising a concrete mass of crystalline magnetite.
3. A wave responsive device comprising a concrete mass of loadstone. 25
4. A wave responsive device comprising a concrete crystalline mass of iron and oxygen.
5. A wave responsive device comprising a concrete crystalline mass of material expressed by the formula Fe_3O_4 . 30

In testimony whereof I affix my signature in presence of two witnesses.

HENRY H. C. DUNWOODY.

Witnesses:

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THOMAS HOWE.